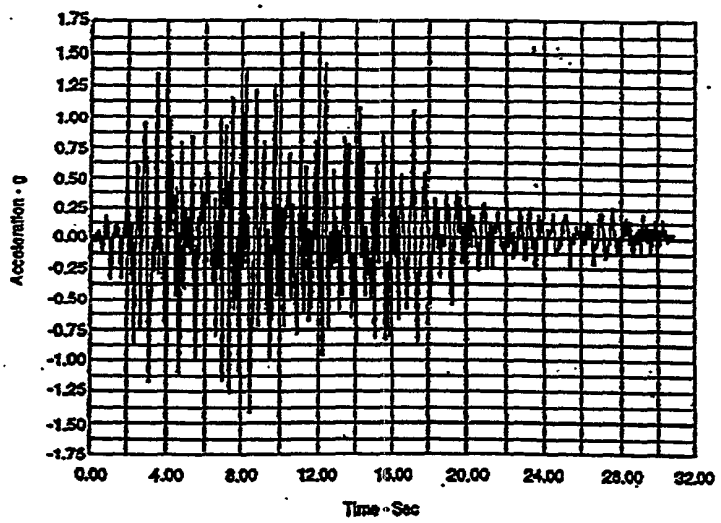
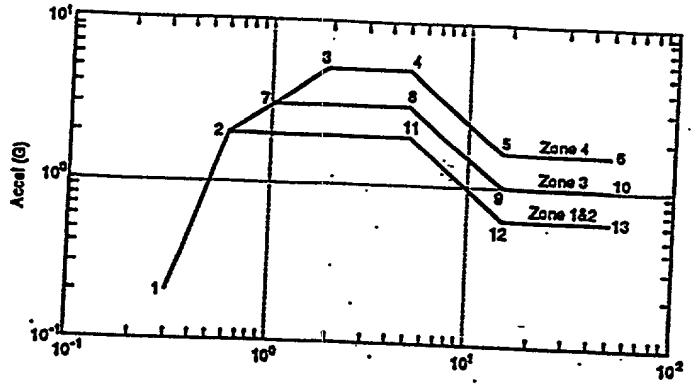


Earthquake Synthesized Waveform - VERTEQII

Fig. 1A



Coordinate Point	Frequency (Hz)	Values for Upper Floor Acceleration (g)
Zones 1 and 2		
1	0.3	0.2
2	0.6	2.0
11	5.0	2.0
12	15.0	0.6
13	50.0	0.6
Zone 3		
1	0.3	0.2
2	0.6	2.0
7	1.0	3.0
8	5.0	3.0
9	15.0	1.0
10	50.0	1.0

Coordinate Point	Frequency (Hz)	Values for Upper Floor Acceleration (g)
Zone 4		
1	0.3	0.2
2	0.6	2.0
3	2.0	5.0
4	5.0	5.0
5	15.0	1.6
6	50.0	1.6

Fig 1B

200

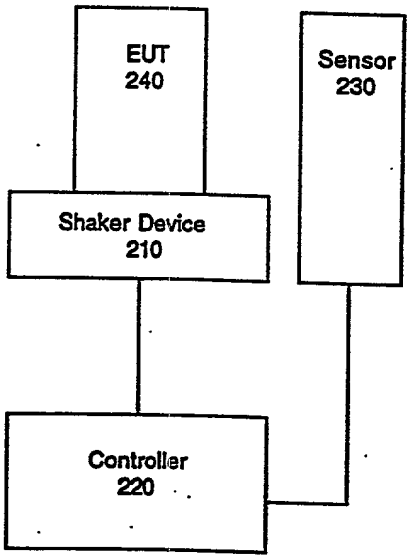


FIG 2

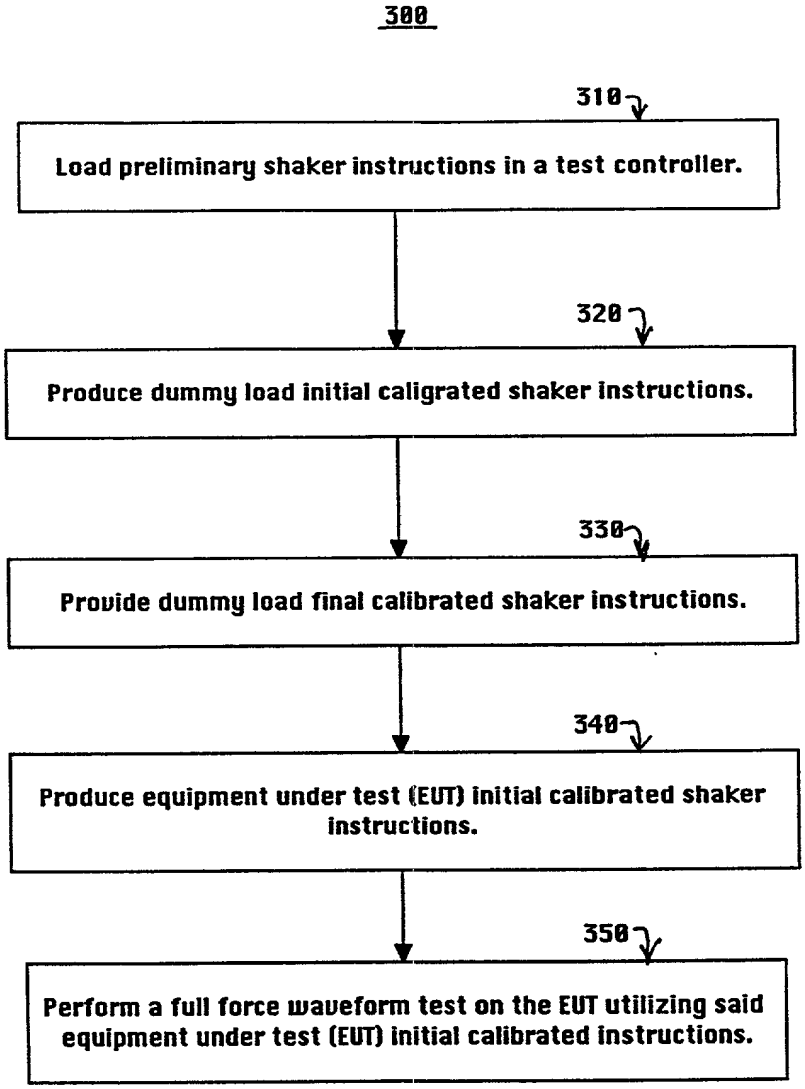

300
310
Load preliminary shaker instructions in a test controller.
320
Produce dummy load initial caligrated shaker instructions.
330
Provide dummy load final calibrated shaker instructions.
340
Produce equipment under test (EUT) initial calibrated shaker instructions.
350
Perform a full force waveform test on the EUT utilizing said equipment under test (EUT) initial calibrated instructions.

FIG. 3A

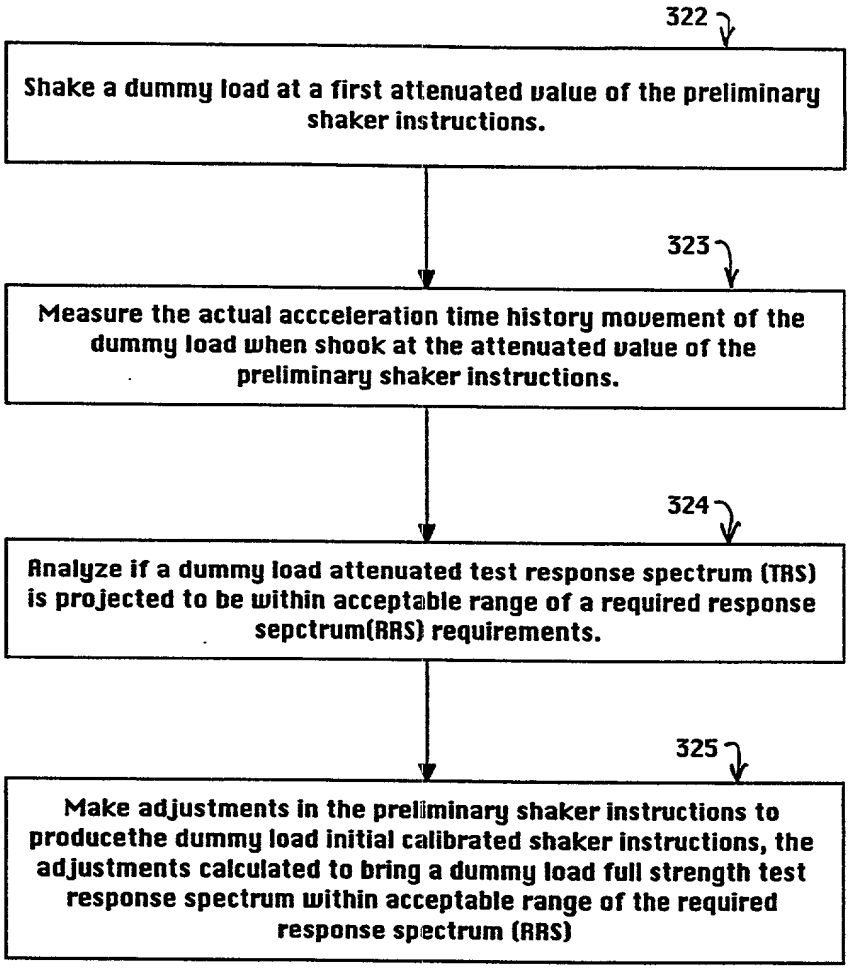

322
Shake a dummy load at a first attenuated value of the preliminary shaker instructions.
323
Measure the actual acccceleration time history movement of the dummy load when shook at the attenuated value of the preliminary shaker instructions.
324
Analyze if a dummy load attenuated test response spectrum (TRS) is projected to be within acceptable range of a required response sepctrum(RRS) requirements.
325
Make adjustments in the preliminary shaker instructions to producethe dummy load initial calibrated shaker instructions, the adjustments calculated to bring a dummy load full strength test response spectrum within acceptable range of the required response spectrum (RRS)

FIG 3B

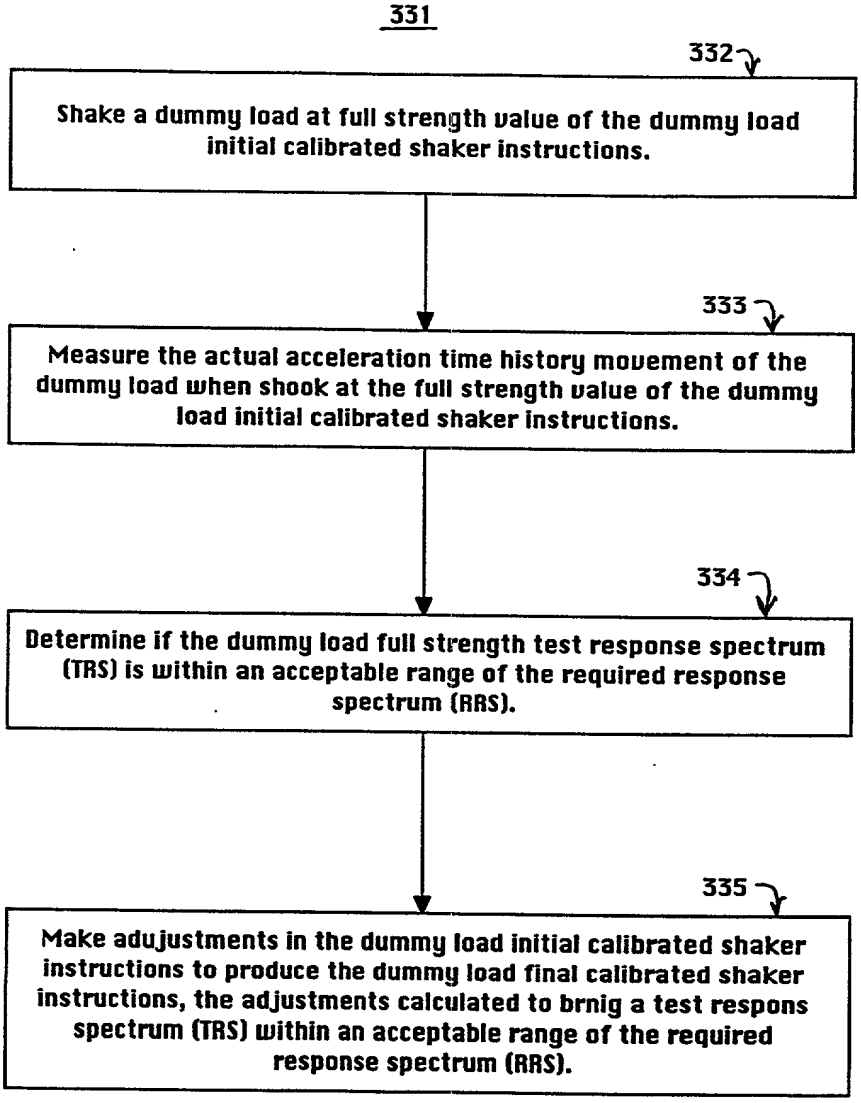

331
332
Shake a dummy load at full strength value of the dummy load initial calibrated shaker instructions.
333
Measure the actual acceleration time history movement of the dummy load when shook at the full strength value of the dummy load initial calibrated shaker instructions.
334
Determine if the dummy load full strength test response spectrum (TRS) is within an acceptable range of the required response spectrum (RRS).
335
Make adujustments in the dummy load initial calibrated shaker instructions to produce the dummy load final calibrated shaker instructions, the adjustments calculated to brnig a test respons spectrum (TRS) within an acceptable range of the required response spectrum (RRS).

FIG 3C

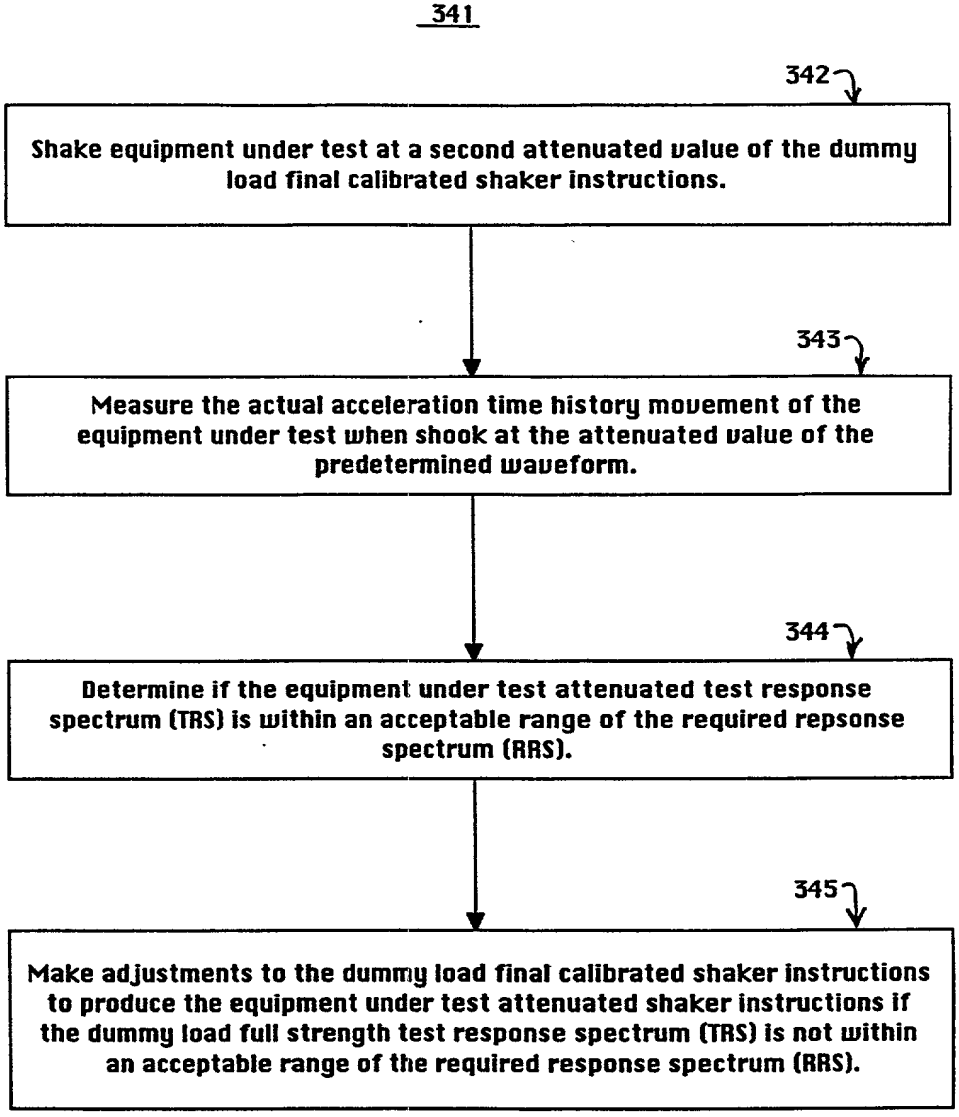

341
342
Shake equipment under test at a second attenuated value of the dummy load final calibrated shaker instructions.
343
Measure the actual acceleration time history movement of the equipment under test when shook at the attenuated value of the predetermined waveform.
344
Determine if the equipment under test attenuated test response spectrum (TRS) is within an acceptable range of the required repsonse spectrum (RRS).
345
Make adjustments to the dummy load final calibrated shaker instructions to produce the equipment under test attenuated shaker instructions if the dummy load full strength test response spectrum (TRS) is not within an acceptable range of the required response spectrum (RRS).

FIG 3D

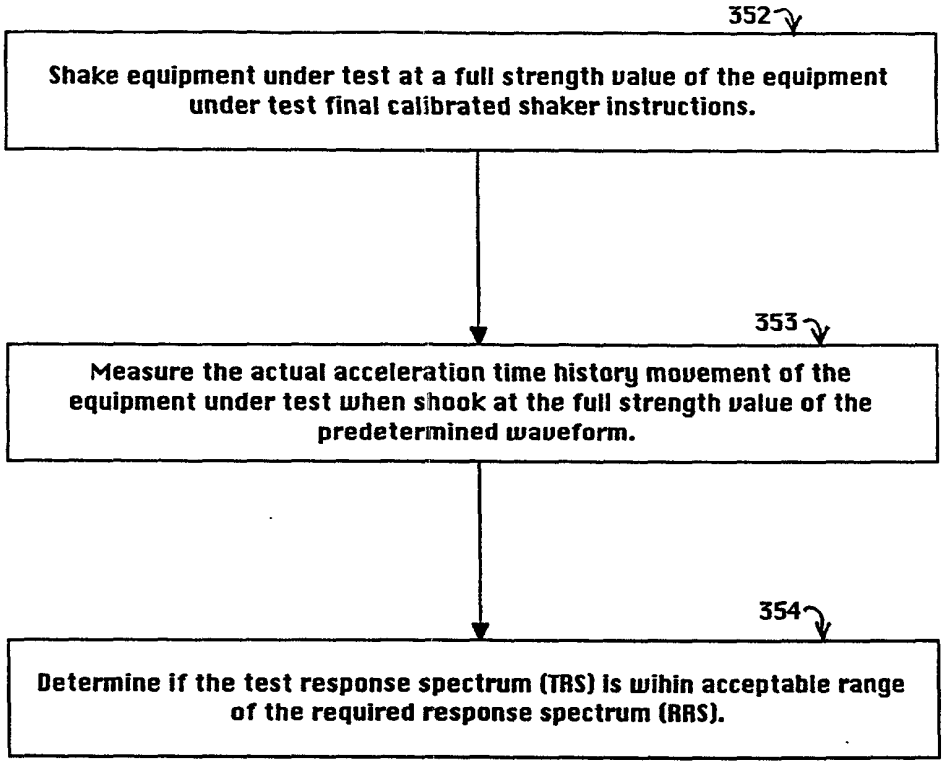

352
Shake equipment under test at a full strength value of the equipment under test final calibrated shaker instructions.
353
Measure the actual acceleration time history movement of the equipment under test when shook at the full strength value of the predetermined waveform.
354
Determine if the test response spectrum (TRS) is wihin acceptable range of the required response spectrum (RRS).

FIG 3E

400

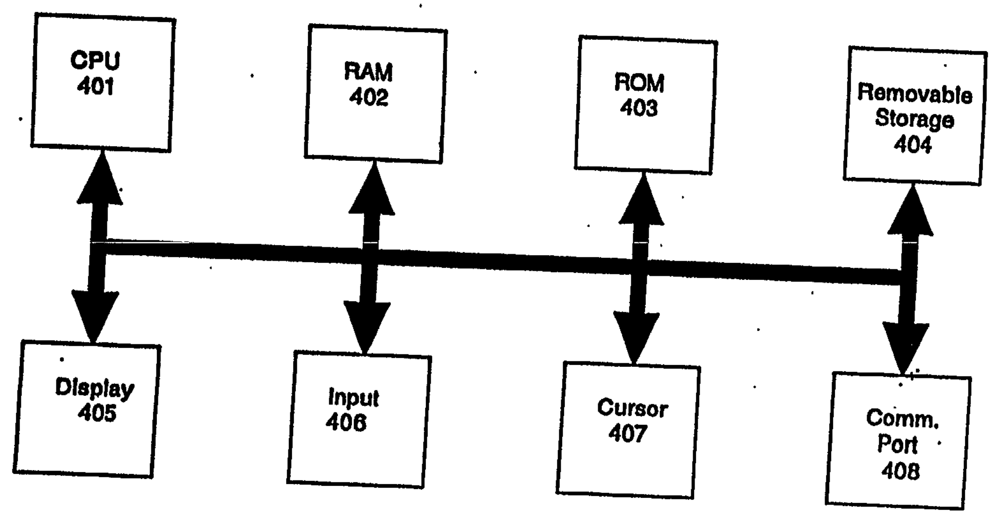

CPU
401
RAM
402
ROM
403
Removable
Storage
404
Display
405
Input
406
Cursor
407
Comm.
Port
408

FIG 4

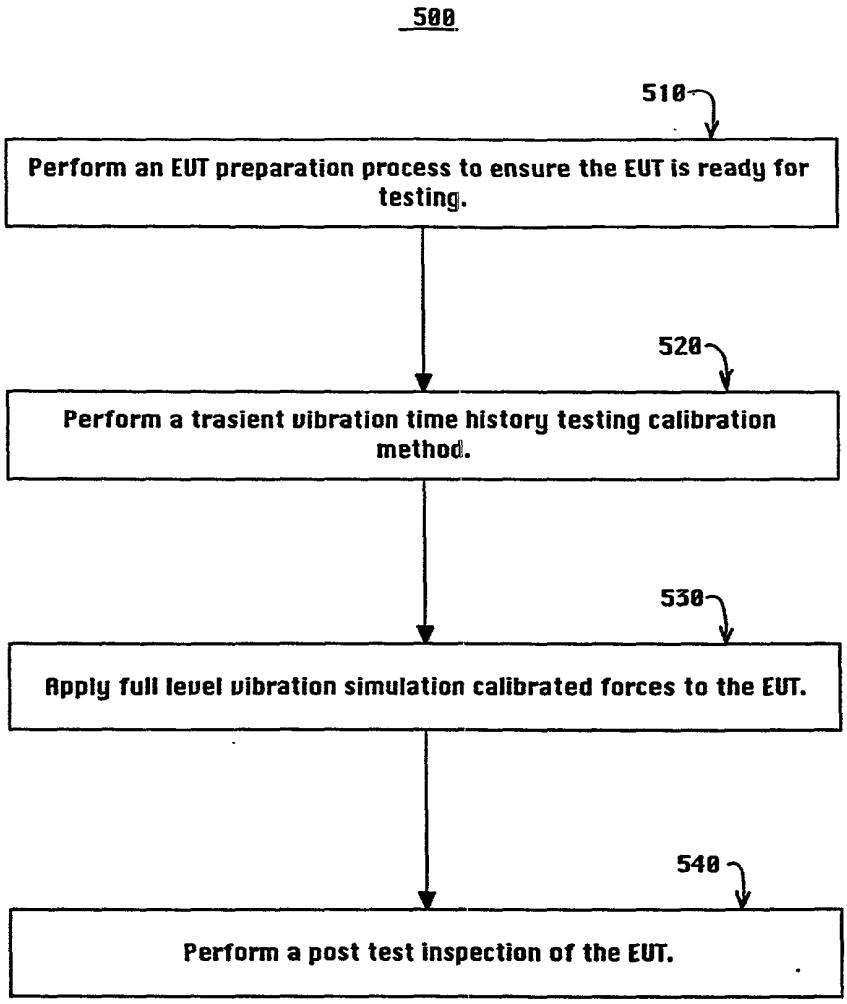

500
510
Perform an EUT preparation process to ensure the EUT is ready for testing.
520
Perform a trasient vibration time history testing calibration method.
530
Apply full level vibration simulation calibrated forces to the EUT.
540
Perform a post test inspection of the EUT.

FIG 5

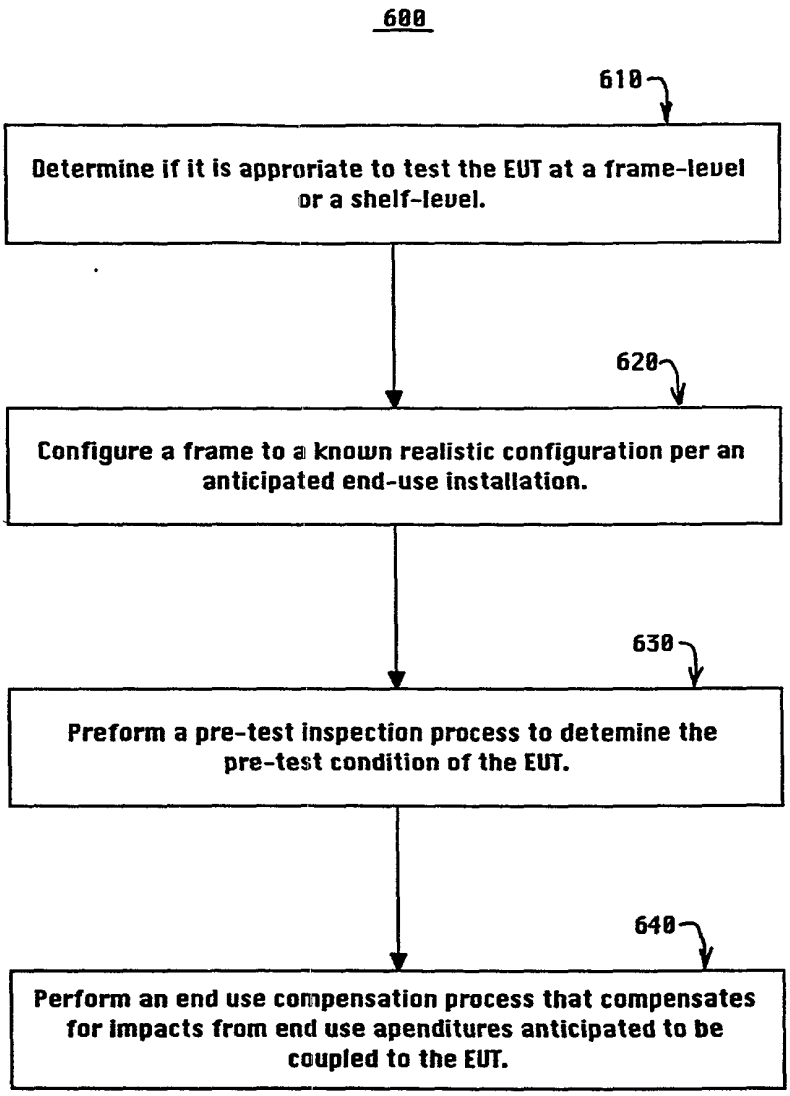

600
610
Determine if it is approriate to test the EUT at a frame-level or a shelf-level.
620
Configure a frame to a known realistic configuration per an anticipated end-use installation.
630
Preform a pre-test inspection process to detemine the pre-test condition of the EUT.
640
Perform an end use compensation process that compensates for impacts from end use apenditures anticipated to be coupled to the EUT.

FIG 6

Test Parameter	Performance Criteria	Test Tolerance
VERTEQII waveform	TRS shall meet or exceed RRS	TRS less than 30% over RRS from 1 to 7 Hz
Acceleration	synthesized waveform 1.6 G's peak for 30 seconds	Not Applicable
data sample rate	200 Hz	Not Applicable
test frame system weight	435 lbs (approximately)	+/- 5%
load-cell torque	up to 65 ft-lbs	+/- 1 ft-lb
Displacement (rack top)	76.2 mm maximum	+/- 5 mm

FIG 7

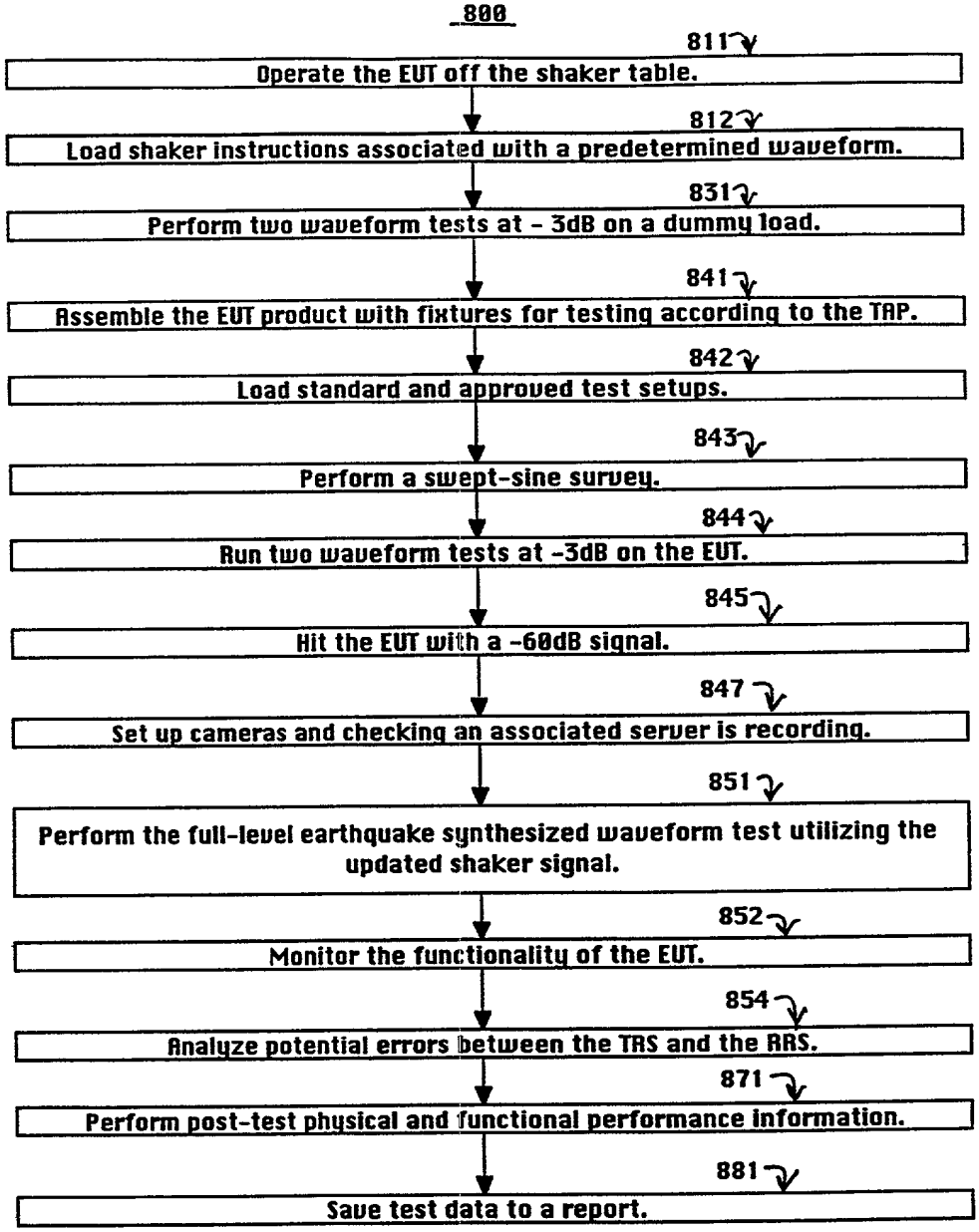

800
811
Operate the EUT off the shaker table.
812
Load shaker instructions associated with a predetermined waveform.
831
Perform two waveform tests at - 3dB on a dummy load.
841
Assemble the EUT product with fixtures for testing according to the TAP.
842
Load standard and approved test setups.
843
Perform a swept-sine survey.
844
Run two waveform tests at -3dB on the EUT.
845
Hit the EUT with a -60dB signal.
847
Set up cameras and checking an associated server is recording.
851
Perform the full-level earthquake synthesized waveform test utilizing the updated shaker signal.
852
Monitor the functionality of the EUT.
854
Analyze potential errors between the TRS and the RRS.
871
Perform post-test physical and functional performance information.
881
Save test data to a report.

FIG 8

Test Parameter	Performance Criteria	Test Tolerance
Frequency Range	1 to 50 Hz	Not Applicable
Sweep Rate	1.0 octave/minute	Not Applicable
Acceleration	0.2 G's	+/- 0.02 G's
data sample rate	200 Hz	Not Applicable
test frame system weight	435 lbs (approximately)	+/- 5%

FIG. 9

:Model #	Code Name	Business Unit	BU Contact
:	:	:	:
———	Vertical	Front-to-Back	Side-to-Side
Date			
Time			
Test Engineer or Technician			
Frame Top Resonant Frequency (Hz)			
EUT Resonant Frequency (Hz)			
Peak Acceleration Response at the top of the Frame (G)			
Displacement (inches or mm)			
Doors, Covers, Panels			
Cracks, Buckles, Visual Inspection			
Bolt or Anchor Torque values (ft-lb)(4)			
Load Cell values (lb, all 4)			
LED Status during the Test			
Diagnostic or software function during the Test			
Comments			

FIG 10